

REMARKS

The allowability of claim 2 is acknowledged appreciatively and incorporated into new claim 7.

Nevertheless, patentability of independent method claim 1 and device claim 3, the latter with corresponding new claim 8 (see page 7, last para and fig. 2) and dependent claims, is still found. In each of these claims the cooled, reflecting surface is made of a dielectric.

As noted in the rejection under 35 USC 103 for obviousness from the cited Elliot and Nishazawa references, "Elliot does not disclose the material of the cooled element ...," but "Nishazawa discloses ... a condensation surface ... of a dielectric plate" The applicant cannot agree, because the condensation surface 4 in the Nishazawa patent is disclosed at column 5, lines 61 to 64, to have high thermal conductivity, which does not disclose or suggest the claimed dielectric, and suggests, "... for example, copper, brass, aluminum or silicon crystal," none of which is dielectric.

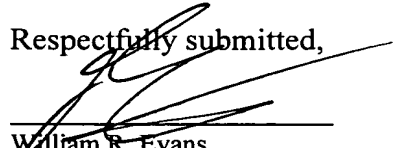
Silicon, for example, is only a semiconductor and a semiconductor has a resistivity between metals and insulators as shown by the attached definitions from the IEEE Dictionary, Seventh Edition.

Moreover, the teaching of only a semiconductor does not teach toward the dielectric claimed, because the other examples of Nishazawa are conductors, like copper. Therefore, the Nishazawa patent teaches away from the claimed invention and not toward it as necessary to complete a rejection from combination with the Elliot patent that does not disclose the material at all.

Moreover, the applicant cannot agree that the range of incidence angles is known from the cited patents, either. As noted in the Action, the Elliot patent only teaches a range of less than 10° whereas claims 4 and 8-10 require less than 9° .

Reconsideration and allowance are, therefore, requested.

Respectfully submitted,



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IEEE 100
The Authoritative Dictionary of
IEEE Standards Terms

Seventh Edition



IEEE

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semiautomatic signal

semiautomatic signal A signal that automatically assumes a stop position in accordance with traffic conditions, and that can be cleared only by cooperation between automatic and manual controls. (EEC/PE) [119]

semiautomatic station (station control and data acquisition) A station that requires both automatic and manual modes to maintain the required character of service. (SWG/PE/SUB) C37.100-1992, C37.1-1994

semiautomatic telephone systems A telephone system in which operators receive orders orally from the calling parties and establish connections by means of automatic apparatus. (EEC/PE) [119]

semiautomatic test equipment (test, measurement, and diagnostic equipment) Any automatic testing device which requires human participation in the decision-making, control, or evaluative functions. (IM/WM&A) 194-1977w

semiconducting jacket A jacket of such resistance that its outer surface can be maintained at substantially ground potential by contact at frequent intervals with a grounded metallic conductor, or when buried directly in the earth. (PE/EEC/AWM) [4], [91]

semiconducting material (1) A conducting medium in which the conduction is by electrons, and holes, and whose temperature coefficient of resistivity is negative over some temperature range below the melting point. *See also:* semiconductor device; semiconductor. (Std100) 270-1966w

(2) A solid material that conducts limited electric current by means of a small number of free electrons and additional electrons that can be freed from their local bonds by the addition of other elements or "doping." For example, silicon is a semiconducting material. *Contrast:* conducting material; insulating material. *See also:* hole. (C) 610.10-1994w

semiconducting paint (rotating machinery) A paint in which the pigment or portion of pigment is a conductor of electricity and the composition is such that when converted into a solid film, the electrical conductivity of the film is in the range between metallic substances and electrical insulators. (IA/APP) [90]

semiconducting tape (power distribution, underground cables) A tape of such resistance that when applied between two elements of a cable the adjacent surfaces of the two elements will maintain substantially the same potential. Such tapes are commonly used for conductor shielding and in conjunction with metallic shielding over the insulation. (PE/TR) C57.15-1968s

semiconductive ignition cable High-tension ignition cable, the core of which is made of semiconductive material. *Note:* Semiconductive is understood here as referring to conductivity and no other physical properties. *See also:* electromagnetic compatibility. (EMC/INT) [53], [70]

semiconductive slot coating The partially conductive paint or tape layer in intimate contact with the groundwall insulation in the slot portion of the stator core. This coating ensures that there is little voltage between the surface of the coil or bar and the grounded stator core. (DEI) 1043-1996

semiconductor (1) An electronic conductor, with resistivity in the range between metals and insulators, in which the electric-charge-carrier concentration increases with increasing temperature over some temperature range. *Note:* Certain semiconductors possess two types of carriers, namely, negative electrons and positive holes. (ED) 216-1960w

(2) A device that is made of semiconducting material. For example: a diode, an integrated circuit, or a transistor. (C) 610.10-1994w

(3) Material in which the conductivity is due to charge carriers of both signs (electrons and holes), is normally in the range between metals and insulators, and in which the charge-carrier density can be changed by external means. (NPS) 325-1996

semiconductor, compensated *See:* compensated semiconductor.

semiconductor junction

semiconductor controlled rectifier (SCR) An alternative name used for the reverse-blocking triode-thyristor. *Note:* The name of the actual semiconductor material (selenium, silicon, etc.) may be substituted in place of the word semiconductor in the name of the components. *See also:* thyristor. (ED) 216-1960w

semiconductor converters, classification The following designations are intended to describe the functional characteristics of converters, but not necessarily the circuits or components used. *Note:* Forms A through D refer only to the converters. Rotational direction of motors may be changed by field or armature reversal. (form A converter) A single converter unit in which the direct current can flow in one direction only and which is not capable of inverting energy from the load to the ac supply. Operates in quadrant I only (semiconverter). (form B converter) A double converter unit in which the direct current can flow in either direction but which is not capable of inverting energy from the load to the ac supply. Operates in quadrants I and III only. (form C converter) A single converter unit in which the direct current can flow in one direction only and which is capable of inverting energy from the load to the ac supply. Operates in quadrants I and IV. (form D converter) A double converter unit in which the direct current can flow in either direction and which is capable of inverting energy from the load to the ac supply. Operates in quadrants I, II, III, and IV. (IA/IPC) 444-1977w

semiconductor device An electron device in which the characteristic distinguishing electronic conduction takes place within a semiconductor. *See also:* semiconductor. (Std100) 270-1966w

semiconductor device circuit breaker (thyristor) A circuit breaker of special characteristics used to isolate or protect semiconductor devices from overcurrent. (IA/IPC) 428-1981w

semiconductor device fuse (thyristor) A fuse of special characteristics connected in series with one or more semiconductor devices to isolate or protect the semiconductor. (IA/IPC) 428-1981w

semiconductor device lead inductance (nonlinear, active, and nonreciprocal waveguide components) The inductance of a semiconductor device associated with the strap, mesh, or wire connections used to contact the semiconductor chip. In general, a larger cross-sectional contacting area results in the increased lead inductance. (MTT) 457-1982w

semiconductor device, multiple unit A semiconductor device having two or more sets of electrodes associated with independent carrier streams. *Note:* It is implied that the device has two or more output functions that are independently derived from separate inputs, for example, a duo-triode transistor. *See also:* semiconductor. (PE/EDPG) [93]

semiconductor device, single unit A semiconductor device having one set of electrodes associated with a single carrier stream. *Note:* It is implied that the device has a single output function related to a single input. *See also:* semiconductor. (PE/EDPG) [93]

semiconductor diode A two-terminal device formed of a semiconductor junction having a nonlinear characteristic that will conduct electric current more in one direction than in the other. (CAS/MTT) 146-1980w

semiconductor-diode parametric amplifier A parametric amplifier using one or more varactors. *See also:* parametric device. (ED) 146-1980w

semiconductor, extrinsic *See:* extrinsic semiconductor.

semiconductor frequency changer A complete equipment employing semiconductor devices for changing from one alternating-current frequency to another. *See also:* semiconductor rectifier stack. (IA) 162-1977w

semiconductor, intrinsic *See:* intrinsic semiconductor.

semiconductor junction (light-emitting diodes) A region of transition between semiconductor regions of different electrical properties. (ED) 112-1977w

semiconductor laser

semiconductor laser *See:* injection laser.

semiconductor, n-type (A) An extrinsic semiconductor in which the conduction electron concentration is donor type. *Note:* It is also: semiconductor.

(B) An n-type semiconductor in which the conduction electron concentration is acceptor type. *Note:* It is also: semiconductor.

semiconductor, n+-type An n-type semiconductor in which the excess conduction electron concentration is acceptor type. *Note:* It is also: semiconductor.

semiconductor, p+-type A p-type semiconductor in which the excess mobile hole concentration is acceptor type. *Note:* It is also: semiconductor.

semiconductor power converter A device employing semiconductor devices for converting ac power. *See also:* semiconductor converter.

semiconductor, p-type An extrinsic semiconductor in which the mobile hole concentration is acceptor type. *Note:* It is also: semiconductor.

semiconductor radiation detector (ray detectors) A semiconductor device in which the detection and motion of excess free carriers is used for the detection and measurement of incident particles or photons of incident radiation. (NPS) 325-1996

(2) A semiconductor device in which the motion of excess free carriers is used for the detection and measurement of incident particles or photons of incident radiation. (NPS) 325-1996

semiconductor rectifier A device forming a junction in which the difference in resistance to current flow is in one direction only. The semiconductor structure of one or more cells. (NPS) 325-1996

semiconductor rectifier cell A semiconductor device consisting of one cathode, one anode, and one junction. *See also:* semiconductor rectifier stack.

semiconductor rectifier cell combination A combination of semiconductor rectifier cells in a stack. The combination is described by a sequence of numbers 1-2-3-4 with the following meanings:

1) Number of rectifier circuit elements.
2) Number of semiconductor rectifier circuit element.
3) Number of semiconductor rectifier circuit element.
4) Symbol designating circuit stack consists of sections of semiconductor rectifier cells insulated from each other, the combination becomes a semiconductor rectifier cell combination.

If the insulated section of semiconductor rectifier cell combination is a semiconductor rectifier cell combination, the combination becomes a semiconductor rectifier cell combination.

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signed binary arithmetic

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simple interconnect

(2) The condition of information that has an enciphered summary appended to it that is used to ensure the integrity of the data, the authenticity of the originator, and the unambiguous relationship between the originator and the data.

(C/PA) 1328.2-1993w, 1326.2-1993w, 1224.2-1993w, 1327.2-1993w

signed binary arithmetic See: sign-magnitude arithmetic.

significance (1) (test, measurement, and diagnostic equipment) The value or weight given to a position, or to a digit in a position, in a positional numeration system. In most positional numeration systems positions are grouped in sequence of significance, usually more significant towards the left. (MIL) [2]

(2) See also: weight. (C) 1084-1986w

significant (1) (binary floating-point arithmetic) The component of a binary floating-point number that consists of an explicit or implicit leading bit to the left of its implied binary point and a fraction field to the right. (C/MM) 754-1985r

(2) (mathematics of computing) The component of a floating-point number that consists of an explicit or implicit leading digit to the left of its implied radix point and a fraction field to the right. *Synonyms:* fixed-point part; mantissa. *Contrast:* exponent. (C/MM) 854-1987r, 1084-1986w

significant (nuclear power generating station) Demonstrated to be important by the safety analysis of the station.

(PE/NP) 381-1977w, 308-19911

Significant Event Evaluation and Information Network (SEE-IN) An information database maintained by the Institute of Nuclear Power Operations (INPO).

(PE/NP) 933-1999

significant aging mechanism An aging mechanism that, if in the normal and abnormal service environment, causes degradation during the installed life of the equipment that progressively and appreciably renders the equipment vulnerable to failure to perform its safety function(s) during design basis event conditions (DBE). (PE/NP) 1205-1993

significant code A code that identifies a particular item and also yields further information about the properties or classification of the item. *Contrast:* nonsignificant code. (C) 610.5-1990w

significant digit (1) (mathematics of computing) A digit that contributes to the accuracy or precision of a numeral. See also: least significant digit; most significant digit. (C) [20], 610.5-1990w, 1084-1986w

(2) (metric practice) Any digit that is necessary to define a value or quantity. (QUL) 268-1982s

(3) Any digit in a number that is necessary to define a numerical value. (SCC14) SI 10-1997

significant-digit arithmetic A method of making calculations using a modified form of floating-point representation in which the number of significant digits in the result is determined by the number of significant digits in the operands, the operations performed, and the degree of precision available. (C) 1084-1986w

significant figure* See: significant digit.

* Deprecated.

significant human interface An interface between personnel and equipment, facilities, software, or documentation, where the resulting human performance is a determinant in the achievement of system performance.

sign-magnitude arithmetic Computer arithmetic using numerals expressed in sign-magnitude notation. *Synonym:* signed binary arithmetic. (C) 1084-1986w

sign-magnitude notation A numeration system in which the left-most bit is interpreted as the sign bit and the remaining bits represent the magnitude. *Contrast:* two's-complement notation. (C) 1084-1986w

sign-off See: logoff.

sign-on See: login.

sign position The position at which the sign of a number is located. (C) [20], [85], 1084-1986w

silent lobing A method for scanning an antenna beam to achieve angle tracking without revealing the scanning pattern on the transmitted signal. (AES) 686-1997

silent zone Part of the skip zone at a distance greater than the range of the ground wave. (AP/PROP) 211-1997

silicon (A) A semiconducting material used in many devices such as integrated circuits and solar cells that in its pure form is a lightweight metal resembling aluminum. (B) A colloquial reference to an integrated circuit. (C) 610.10-1993

silicon controlled rectifier (SCR) (thyristor) An alternative name for the reverse blocking triode thyristor. *Note:* Although not an official definition, the term "unidirectional" is sometimes used to describe the single switching class of thyristors consisting of reverse-blocking and reverse-conducting thyristors. This term is useful for comparing or contrasting this class of thyristors with bidirectional thyristors. (IA/IPC) 428-1981w

silicone oil (insulating oil) A generic term for a family of relatively inert liquid organosiloxane polymers used as electrical insulation. (PE/TR) 637-1985

silvering (electrotyping) The application of a thin conducting film of silver by chemical reduction upon a plastic or wax matrix. (PE/EEC) [119]

silver oxide cell A cell in which depolarization is accomplished by oxide of silver. See also: electrochemistry. (EEC/PE) [119]

silver storage battery An alkaline storage battery in which the positive active material is silver oxide and the negative contains zinc. See also: battery. (EEC/PE) [119]

silver-surfaced or equivalent Metallic materials having satisfactory long-term performance that operate within the temperature rise limits established for silver-surfaced electrical contact parts and conducting mechanical joints. (SWG/PE) C37.100-1992

SIM++ A programming language used for simulations on distributed computing systems. (C) 610.13-1993w

SIMD See: single instruction, multiple data.

similar design bar/coil A similar design bar/coil is a bar/coil of the same design and manufacture using same materials and processes as the actual production bar/coil except that it may be longer in the slot section, and/or larger in the copper and/or groundwall cross section than the actual production bar/coil. The variance in the slot section length and the cross section of the 'similar design bar/coil' and the actual production bar/coil must be identified prior to the start of the thermal cycling test. (PE/EM) 1310-1996

simple arc An arc that does not cross itself. (C) 610.4-1990w

simple buffering A buffering technique in which a buffer is allocated to a computer program for the duration of the program's execution. *Contrast:* dynamic buffering. (C) 610.12-1990

simple circuit (A) A circuit permitting the transmission of signals in either direction, but not in both simultaneously. *Contrast:* two-way circuit. (B) A circuit permitting the transmission of signals in one specific direction only. (C) 610.10-1994

simple combination of insulating materials (thermal classification of electric equipment and electrical insulation) A number of insulating materials, which together make possible the evaluation of any interaction between them. (EI) 1-1986

simple electrical ground and test device A device with one terminal set and a power-operated ground-making switch for connecting the terminal set to the device ground connection system, complete with necessary isolation barriers and suitable interlocking. Voltage test ports may be provided. (SWG/PE) C37.20.6-1997

simple GCL circuit See: simple parallel circuit; simple series circuit.

simple interconnect A connection between two or more component pins consisting only of a net. *Contrast:* extended interconnect. (C/TT) 1149.4-1999

simple manual ground and test

simple manual ground and test device A device with one terminal set and a power-operated ground-making switch for connecting the terminal set to the device ground connection system, complete with necessary isolation barriers and suitable interlocking. Voltage test ports may be provided. (SWG/PE) C37.20.6-1997

simple message An MTM-Bus message that contains a HEADER and, optionally, a PACKET COUNT packet pair.

simple network management protocol A protocol used for the management of networks, especially on the internet and other networks, for the communication of information between a management console and a management console.

simple parallel circuit A linear circuit consisting of resistance, inductance, and capacitance in parallel. *Synonym:* simple GCL circuit.

simple path A path in which all the elements in the sequence are distinct.

simple rectifier A rectifier consisting of a single-way or two-commutator rectifier. *Contrast:* full-wave rectification.

simple rectifier circuit A rectifier circuit consisting of a single-way or two-commutator rectifier. *Contrast:* full-wave rectification.

simple scanning (facsimile) Scanning at a time during the scan line.

simple series circuit A resistor circuit in series. See also: network analysis.

simple sine-wave quantity A periodic function with time t as either $A \sin(\omega t + \theta)$ or $A \cos(\omega t + \theta)$, where A , ω , and θ are constants. (S) [119]. *Notes:* 1. It is important to use, so long as no ambiguity is introduced, 2. A is the amplitude (or $\omega t + \theta$), the phase, θ , is the phase angle, 3. In certain cases, when no ambiguity may be introduced, $\omega t + \theta$ is called "phase angle" in order to avoid confusion. Another permissible notation is $\omega t + \theta$.

simple sound source A source of sound waves in all directions under free-field conditions.

simple target A target which is a major scattering center so that it is insensitive to viewing angle. *Note:* Example of a simple target is a half wavelength. Also see: complex target.

simple thyristor converter A converter consisting of one commutating group of thyristors.

simple tone (A) (pure tone) A sound pressure of which is a sine wave. (B) (pure tone) A sound pressure of which is a sine wave. *Note:* A pure tone is simple or complex, depending on the listening attitude.

simplex (1) A communication system in which transfer in one direction only is possible. *Contrast:* simplex channels simultaneous transfer.

simplex (2) (local area networks) A network of transferring signals in one direction only.